October 11, 1961

Mr. Jack Aplund
Applied Physics Corporation
Monrovia, California

Dear Mr. Aplund:

After your call yesterday, I thought of another possible approach to the development of suitable samples for testing and demonstrating your micro attachment. We have had a similar problem and I would suggest the following: namely, thin films of polyvinyl alcohol to which are added one or another chromophore with an interesting absorption spectrum. I am including with this letter a small sample of elvanol which is the DuPont polyvinyl alcohol. The advantage to PVA is that it forms smooth transparent films which can be readily cast on quartz slides. The PVA itself has a rather flat absorption spectrum rather far into the ultraviolet. You might then, for example, prepare a ten per cent solution of the elvanol in water - don't worry if it does take some time to dissolve - and then add to various aliquots any of a variety of organic compounds whose absorption spectrum you will already know. The mixture can then be cast as a thin film on a slide, then allowed to dry. This may either be used with the slide as a support (if you use a quartz slide) or with some care, it can be stripped from the slide to give a thin film. For your purposes I imagine it would be advantageous to merely spot a small drop of the PVA solution and let it dry out so that this point on the slide will have a characteristic chromophore on it. It may be advantageous to dissolve the polyvinyl alcohol in 0.3% glycerol rather than in water as this will help to plasticize the film.

I will be especially interested to learn how your instrument deals with turbid specimens which are such a problem in conventional spectrometry. The high collecting aperture of microscope objectives should facilitate in the collection of a large part of the scattered light which is an essential feature of efficient spectrometry of turbid materials.

Yours sincerely,

Joshua Lederberg
Professor of Genetics

Enc: pva
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